UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,761	05/25/2006	Curtis Dobson	81599-3	7370

50670 7590 11/26/2008

DAVIS WRIGHT TREMAINE LLP/Los Angeles
865 FIGUEROA STREET
SUITE 2400
LOS ANGELES, CA 90017-2566

EXAMINER	
PARKIN, JEFFREY S	
ART UNIT	PAPER NUMBER
1648	
MAIL DATE	DELIVERY MODE
11/26/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,761	DOBSON, CURTIS	
	Examiner	Art Unit	
	Jeffrey S. Parkin	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-16 and 18-22* is/are pending in the application.

4a) Of the above claim(s) *18-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May, 2006,* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Notice to Comply...*.

Detailed Office Action

Status of the Claims

Acknowledgement is hereby made of receipt and entry of the communication filed 28 July, 2008. Claims 1, 3-16, and 18-22 are pending in the instant application. Applicant's election with traverse of Group I is acknowledged. Applicant asserts that each of the identified groups is directed toward a single unifying concept (a modified apoE peptide). This is not found persuasive for the reasons of record clearly set forth in the Office action mailed 19 January, 2008. Accordingly the requirement is still deemed to be proper and is therefore made **FINAL**. Claims 18-22 are withdrawn from further consideration by the examiner, pursuant to 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed.

37 C.F.R. § 1.821-1.825

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 C.F.R. § 1.821(a)(1) and (a)(2) (e.g., see pages 23-25 and 28 of the specification). However, this application fails to comply with the requirements of 37 C.F.R. § 1.821 through 1.825 for the reason(s) set forth below or on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures. The sequence rules embrace all unbranched nucleotide sequences with ten or more bases and all unbranched, non-D amino acid sequences with four or more amino acids, provided that there are at least 4 "specifically defined"

nucleotides or amino acids. The rules apply to **all** sequences in a given application, whether claimed or not. See M.P.E.P. § 2421.02. Applicant is reminded that sequences appearing in the specification (e.g., see Table 1 on p. 6) and/or drawings must be identified by a sequence identifier (SEQ ID NO.:) in accordance with 37 C.F.R. § 1.821(d). Applicant should review the entire specification, including the drawings, carefully for compliance with the sequence requirements. It was also noted that there was a discrepancy between the sequence listing and claimed sequences. The paper copy of the sequence listing only lists 51 sequences whereas claim 9 references SEQ ID NO.: 66. Applicant must provide appropriate amendments to the specification and/or drawings. Extensive amendments may necessitate the submission of a substitute specification. The specification is objected to because it fails to meet the requirements set forth *supra*.

Drawings

The drawings are objected to because they are illegible (see Figs. 9 and 10). Corrected drawing sheets in compliance with 37 C.F.R. § 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 C.F.R. § 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

37 C.F.R. § 1.98

The information disclosure statement filed 14 March, 2008, has been placed in the application file and the information referred to therein has been considered.

37 C.F.R. § 1.72

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Antiviral polypeptides comprising tandem repeats of $apoE_{141-149}$ and variants thereof.

35 U.S.C. § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Two separate requirements are set forth under this statute: (1) the claims must set forth the subject matter that applicants regard as their invention; and (2) the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant. The claims are directed toward polypeptides comprising $apoE_{141-149}$ tandem repeats, derivatives thereof, analogues thereof, or truncations thereof. The term "derivative or analogue thereof" as defined in the specification (see p. 4) references peptides with amino acid substitutions wherein said aa have similar side chains of peptide backbone properties. This definition fails to provide any further clarity pertaining to the claim language. The structural differences between a polypeptide derivative or analogue are not readily manifest. Concerning claims 6 and 9, these claims are vague and indefinite for referencing sequence identifiers that are not present in the sequence listing. Appropriate correction is required.

35 U.S.C. § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Scope of Enablement

Claims 1 and 3-16 are rejected under 35 U.S.C. § 112, first paragraph, because the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The claims are directed toward antiviral polypeptides comprising $apoE_{141-149}$ tandem repeats, derivatives thereof, analogues thereof, or truncations thereof. The parent tandem polypeptide has the amino acid sequence LRKLRKKRLLLRKLRKKRLL. It was also stipulated that said polypeptides carry at least one additional mutation (either W, K, or R) at one of the leucine residues in this polypeptide. It appears that only polypeptides having the recited mutations (either W, K, or R) in the L residues have the desired activity. Appropriately drafted claim language directed toward these embodiments would be acceptable.

The legal considerations that govern enablement determinations pertaining to undue experimentation have been clearly set forth. *Enzo Biochem, Inc.*, 52 U.S.P.Q.2d 1129 (C.A.F.C. 1999). *In re Wands*, 8 U.S.P.Q.2d 1400 (C.A.F.C. 1988). *Ex parte Forman* 230 U.S.P.Q. 546 (PTO Bd. Pat. App. Int., 1986). The courts concluded that several factual inquiries should be considered when making such assessments including the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in that art, the predictability or unpredictability of the art and the breadth of the claims. *In re Rainer*, 52 C.C.P.A. 1593, 347 F.2d 574, 146 U.S.P.Q. 218 (1965).

The disclosure fails to provide adequate guidance pertaining to a number of these considerations as follows:

1) The disclosure fails to provide adequate guidance pertaining to the maximum sequence lengths that result in retention of antiviral activity. The $apoE_{141-149}$ tandem repeat polypeptide is 18 amino acids in length. However, the claims do not recite any maximum sequence lengths. The skilled artisan would reasonably conclude that this polypeptide might not work when placed in the context of a much larger polypeptide (e.g., 25kDa, 50kDa, 100kDa, etc.) because of steric hindrance.

2) The disclosure fails to provide adequate guidance pertaining to the minimum sequence lengths that result in retention of antiviral activity. The $apoE_{141-149}$ tandem repeat polypeptide is 18 amino acids in length and consists of the following amino acid sequence: LRKLRKRLLLRKLRKRLL. However, the claims do not recite any minimum sequence lengths. The skilled artisan would reasonably conclude that truncation of the core sequence would result in a loss of peptide activity, particularly when the molecular determinants modulating the antiviral activity are disturbed.

3) The disclosure fails to provide adequate guidance pertaining to acceptable amino acid substitutions, additions, deletions, or modifications that will result in retention of antiviral activity. In fact, the disclosure appears to suggest that substitutions of only three amino acid residues (K, R, and W) at existing L in the parent polypeptide display the requisite activity. Peptides having other amino acids substitutions at the Leu residues were not functional as were peptides having amino acid substitutions outside of these residues (see pp. 30, 32, and 35). This suggests the antiviral activity of the polypeptide

requires a critical conformation that is not tolerant to single or multiple amino acid changes.

4) The claims encompass an inordinate number of polypeptide variants with single or multiple amino acid additions, deletions, and/or substitutions. However, the disclosure fails to provide adequate guidance pertaining to those regions that modulate antiviral activity.

5) The state-of-the-art as it pertains to antiviral development is replete with scientific obstacles. The generation of efficacious antivirals has proved difficult because of several factors including the quasispecies nature of many viral infections which leads to rapid drug resistance, the failure of many compounds to display a favorable pharmacological profile, and the failure of many animal models to accurately predict clinical efficacy (Gait and Karn, 1995; Hirsch *et al*., 1998).

Accordingly, when all the aforementioned factors are considered *in toto*, it would clearly require undue experimentation from the skilled artisan to practice the claimed invention in a manner commensurate in scope with the claims.

Correspondence

Any inquiry concerning this communication should be directed to Jeffrey S. Parkin, Ph.D., whose telephone number is (571) 272-0908. The examiner can normally be reached Monday through Thursday from 10:30 AM to 9:00 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Bruce R. Campell, Ph.D., can be reached at (571) 272-0974. Direct general status inquiries to the Technology Center 1600 receptionist at (571) 272-1600. Informal communications may be submitted to the Examiner's RightFAX account at (571) 273-0908.

Applicants are reminded that the United States Patent and Trademark Office (Office) requires most patent related

correspondence to be: a) faxed to the Central FAX number (571-273-8300) (updated as of July 15, 2005), b) hand carried or delivered to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), c) mailed to the mailing address set forth in 37 C.F.R. § 1.1 (e.g., P.O. Box 1450, Alexandria, VA 22313-1450), or d) transmitted to the Office using the Office's Electronic Filing System. This notice replaces all prior Office notices specifying a specific fax number or hand carry address for certain patent related correspondence. For further information refer to the Updated Notice of Centralized Delivery and Facsimile Transmission Policy for Patent Related Correspondence, and Exceptions Thereto, 1292 Off. Gaz. Pat. Office 186 (March 29, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully,

/Jeffrey S. Parkin/

Jeffrey S. Parkin, Ph.D.
Primary Examiner
Art Unit 1648

23 November, 2008